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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,473	12/27/2001	Sunghoe Yoon	8733.573.00	7768

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EXAMINER

DI GRAZIO, JEANNE A

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 03/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,473

Applicant(s)

YOON, SUNGHOE

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Applicant claims benefit to Korean Patent Application No. 2001-25693 (May 11, 2001).

Claim Objections

Claim 7 is objected to because of the following informality: Claim 7 (method) refers to claim 5 (device) when it should refer to claim 6 (method). Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1, 4, 5, 6, 8, and 10-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/026,483 in view of Toyoji (JP 11-305216).

Although the conflicting claims are not identical, they are not patentably distinct from each other because: Claim 1 (10/026,483) recites a first substrate, an absorption layer on the first substrate, a cholesteric liquid crystal (CLC) color filter on the absorption layer, a first electrode on the CLC color filter, a second substrate spaced apart from the first substrate, a second electrode on the rear surface of (beneath) the second substrate, a retardation layer on the front

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surface of the second substrate, a polarizer on the retardation layer, and a liquid crystal layer between the first electrode and the second electrode.

Applicant claims instead, and in addition to these elements, a cholesteric liquid crystal color filter that has a plurality of protrusions and an overcoat layer on the cholesteric liquid crystal color filter and a first electrode on the overcoat layer instead of on the cholesteric liquid crystal color filter itself.

Claim 1 of 10/026,483 does not appear to recite that the CLC color filter has protrusions and an overcoat layer over the CLC color filter; however, Toyoji has a color filter with dot-like protrusions formed on the color filter (PAJ). Toyoji also has an overcoat layer formed over an entire substrate (PAJ). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Claim 1 of 10/026,483 in view of Toyoji because the management of substrate gap is an important parameter that determines display characteristics particularly in liquid crystal light modulation elements using reflective-type liquid crystal light modulation elements that use cholesteric liquid crystals. Overcoat layers are also typically used to smoothen out an uneven surface for uniform substrate gap.

2. Claim 2 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Application 10/026,483 and Toyoji (JP 11-305216) in view of Yamanaka et al. (US '653 B1).

Per claim 2: Application 10/026,483 does not appear to claim a shape, size, and distribution of protrusions controlled to make a distribution of reflected light be uniform within a viewing angle range of about 30 degrees upward and downward from a front direction; however, Yamanaka has a reflective film reflected to have a constant intensity within a range subtending

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an angle of about 25 degrees in each of forward, rearward, leftward, and rightward directions about the front side of a panel (Col. 38, Lines 5-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '483 in view of Yamanaka for high brightness as noted in Yamanaka (Col. 38, Lines 10-13).

3. Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Application 10/026,483 and Toyoji (JP 11-305216) in view of Taniguchi et al. (US '134).

Per claim 3: '483 does not appear to claim a shape, size, and distribution of protrusions controlled to make a distribution of reflected light be decreased gradually within about 20% of the luminance of a front direction; however, Taniguchi has an optical member with a dot-formed surface such that the arrangement of dot patterns has an arrangement of plus or minus 20% with respect to luminance distribution (Col. 13, Lines 20-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '483 in view of Taniguchi to suppress unevenness in luminance distribution (Col. 13, Lines 29-31).

4. Claims 4 and 5 are rejected under the judicially created doctrine of obviousness-type double patenting over claims 13, 15, and 16 of '483 in view of Toyoji (JP 11-305216).

Per claims 4 and 5: Applicant claims a TFT that switches signals to second and first electrodes, respectively. Claims 15 and 16 recite TFTs that switch second and first electrodes, respectively. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include TFTs that switch second and first electrodes because TFTs are commonly used for switching in active matrix displays.

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5. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting over claim 24 of '483 in view of Toyoji (JP 11-305216).

Per claim 6 Forming an absorption layer on a substrate; forming a cholesteric liquid crystal color filter (CLC) on the absorption layer are recited elements of claim 24 of '483. Forming a transparent electrode electrode on an overcoat layer is a common method step in the art. Claim 24 does not appear to recite a CLC color filter with protrusions and an overcoat layer on the CLC color filter; however, Toyoji has such elements as noted previously. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Claim 24 of 10/026,483 in view of Toyoji because the management of substrate gap is an important parameter that determines display characteristics particularly in liquid crystal light modulation elements using reflective-type liquid crystal light modulation elements that use cholesteric liquid crystals. Overcoat layers are also typically used to smoothen out an uneven surface for uniform substrate gap.

6. Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Application 10/026,483 and Toyoji (JP 11-305216) in view of Liu (US '464).

Per claim 7: '483 does not appear to claim a plurality of protrusions of the CLC color filter formed through exposing and developing a photoresist; however, Liu has bump structures formed on a color filter substrate and the bump structures are formed by a photolithographic process (Col. 4, Lines 42-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '483 in view of Liu to provide a wide viewing angle and

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to control the tilt direction of liquid crystal molecules (Col. 3, Lines 31-34) and also the formation of protrusions by a photoresist is common in the art.

7. Claim 8 is rejected under the judicially created doctrine of obviousness-type double patenting over claim 1 of '483 in view of Toyoji (JP 11-305216).

Per claim 8: '483 does not appear to claim protrusions having a rounded surface; however, Toyoji has dot-like projections on the color filter and dots typically have rounded surfaces. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '483 in view of Toyoji because protrusions – whether used as spacers or other projections – typically have rounded surfaces.

8. Claim 9 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Application 10/026,483 and Broer et al. (US '216 B1) in view of Toyoji (JP 11-305216).

Per claim 9: Broer has first and second substrates, an absorption layer on a substrate, and a liquid crystal interposed between the first and second substrates (Col. 2, Lines 38-45). Broer also has a color filter layer of a cholesteric material (Col. 1, Lines 8-12). Broer does not appear to have a CLC layer having a plurality of protrusions on the absorption layer; however, Toyoji has color filter layers with projections as noted. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '438 in view of Broer and Toyoji to prevent color shift (Col. 1, Lines 40-43) and because the management of substrate gap is an important parameter that determines display characteristics particularly in liquid crystal light modulation elements using reflective-type liquid crystal light modulation elements that use cholesteric liquid crystals.

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9. Claim 10 is rejected under the judicially created doctrine of obviousness-type double patenting over claim 25 of '483 in view of Liu (US '464).

Per claim 10: Steps of providing a mask having a plurality of transmissive portions and blocking portions over a photoresist, exposing the photoresist to light, removing selected portions of the photoresist, and providing an overcoat layer are common method steps in the art. Claim 25 of '483 recites the elements of claim 10 except for the photoresist method steps and the formation of protrusions on a CLC layer; however, Liu has protrusions formed by a photoresist sequence of steps and these structures (bumps) are part of a color filter substrate (Col. 4, Lines 42-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '483 in view of Liu for wide viewing angle as noted in Liu.

Claims 11 and 12 are rejected under the judicially created doctrine of obviousness-type double patenting over '483 in view of Liu (US '464).

Per claims 11-12: '483 does not appear to claim a negative and positive photoresist; however, Liu has a negative and positive photoresist (Col. 4, Lines 52-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '483 in view of Liu for ease of manufacturing protrusions on a CLC layer. Negative and positive photoresists are commonly used to form spacers and protrusions in liquid crystal technology.

10. Claim 13 is rejected under the judicially created doctrine of obviousness-type double patenting over claim 24 of '483 in view of Toyoji (JP 11-305216).

Per claim 13: Forming a first electrode layer is common in the art for switching an active matrix device (See Claim 6 rejection above that addresses this element).

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11. Claim 14 is rejected under the judicially created doctrine of obviousness-type double patenting over claim 24 of '483 in view of Toyoji (JP 11-305216).

Per claim 14: Claim 25 of '483 has a second alignment layer on a substrate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include at least an alignment layer for alignment of LC molecules.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG
March 7, 2003


ROBERT KIM
TECHNICAL STAFF